DOCUMENT RESUME

ED 405 816 IR 018 256

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TITLE A Team Approach to Managing Technology: Despite Our Differences--We Had To Make IT Work!
PUB DATE 96
NOTE 9p.; In: Association of Small Computer Users in Education (ASCUE) Summer Conference Proceedings (29th, North Myrtle Beach, SC, June 9-13, 1996); see IR 018 247.
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Budgets; *Computer Networks; Cooperative Planning; Group Activities; Higher Education; Information Technology; Long Range Planning; *Participative Decision Making; Resource Staff; *Self Directed Groups; *Teamwork; *Telecommunications; User Needs (Information); Vendors
IDENTIFIERS Academic Computing; Barriers to Implementation; *Franklin University OH; Project Management; Stakeholders; Technology Implementation; *Technology Plans

ABSTRACT

Franklin University, a private urban university with 4500 students located in Columbus, Ohio, completed the initial phase of a long-range, campus-wide technology plan. The plan creates a well supported and managed computing and communications infrastructure focusing on: user support systems; classrooms and laboratories; offices; outside access; and network infrastructure. A five-member self-directed team composed of administrators, faculty, and staff were responsible for all strategic and tactical decisions. The team approach has many advantages and disadvantages. This paper identifies the major events, problems, and triumphs the team encountered related to: defining the identity of individuals and the team as a whole; assuming additional roles and responsibilities; planning and managing capital and operating budgets; communicating to stakeholders; managing multiple projects; negotiating with vendors; hiring and managing a technical support staff; and resolving team conflicts. Collaborative risk taking, with trust, is a necessary quality for successful team management of technology. (SWC)

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A Team Approach to Managing Technology: Despite Our Differences - We Had To Make IT Work!

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ABSTRACT:

Franklin University, a private urban university with approximately 4500 students located in Columbus, Ohio, recently completed the initial phase of a long-range, campus-wide technology plan. The plan is to create a well supported and managed computing and communications infrastructure focusing on five elements: 1) User Support Systems; 2) Classrooms and Laboratories; 3) Offices; 4) Outside Access; and 5) Network Infrastructure.

This plan is guided by a five member self-directed team representing administrators, faculty, and staff. Contrary to traditional IT administrative structures utilizing a Chief Technical Officer, a team approach to making all strategic and tactical decisions has many advantages and disadvantages. This paper will identify the major events, problems, and triumphs encountered by the team within these processes:

- Defining who we are as a team
- Assuming additional roles and responsibilities
- Planning and managing capital and operating budgets
- Communicating to stakeholders
- Managing multiple projects
- Negotiating with vendors
- Hiring and managing a technical support staff
- Resolving team conflicts

IN THE BEGINNING

Fall of 1993 was a low point for technology on the campus of Franklin University. Despite allocating 10% of the annual budget for technology over the past five years, students and staff frequently complained of out-of-date workstations and software, inability to share data, no means of communications beyond the telephone, and no support for improving the situation. While planning for the 1994-1995 budget, the Academic Vice President established a cross-functional team of faculty and staff to advise him on technology matters. The committee known as Ad-Hoc Instructional Technology Committee (ITC), was charged to research and develop a 3-year technology plan and establish a scheme for priority of purchases.

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Before any work could be done on the Plan, the ITC established a vision for technology which reads:

> "Technology will facilitate the formation of a partnership for learning with and among Franklin University students, faculty, administrators, and staff. This partnership will produce and deliver the highest quality educational programs and services. To meet this goal, technology must be used in five ways: 1) serve the students, faculty, administrators, and staff to promote the highest level of learning and productivity; 2) increase the effectiveness of the learning process; 3) increase the efficiency in performing work; 4) increase collaboration and relationships through improved channels of communications; and 5) increase technological awareness and skills of the Franklin community resulting in graduates who are technically literate appropriate to their disciplines."

These statements were to form a bond with the mission of the University and an agreed upon direction to follow.

The ITC produced a general plan for technology over the next three years. Beyond three years, opportunities for new technologies would need to be re-evaluated. The ITC analyzed these segments of the University environment: User Support Systems; Classrooms and Laboratories; Offices; Outside Access; and Network Infrastructure. Within the Plan, the ITC devised a system for yearly spending. The priorities are: 1) The University should ensure that instructional technology equipment is appropriately maintained or replaced to provide reliable service to students and faculty; 2) Each faculty member should be empowered to determine which computer system is best for their own use, in the context of their program; 3) The University should provide equipment and staff responsible for developing and maintaining technological solutions for instructional problems; 4) The University should provide sufficient funds for the routine upgrading of instructional technology resources; 5) Resources should be expanded to meet the increased demands of students and faculty; and 6) The University should provide a contingency budget for instructional technology equipment which may be purchased during the budget period.

THE DECISION TO MANAGE TECHNOLOGY BY A TEAM

For Franklin University, the problems with a hierarchical model for managing technology resulted in a management system which lacked broad-based input to the technology issues, effective academic support services, ability to integrate administrative and academic technology needs, and the ability to move quickly as new technological opportunities arose. The President of the university, influenced by the movement to flatten the organization and create self-directed teams, assigned five persons, three from administrative operations and two from academics, with the task of deploying and managing campus-wide technology. The Team is composed of: Assistant Dean of Technology, Instructional Designer, Director of Institutional Research, Director of Administrative Computing, and Director of Facilities.

The charge from the President was:

> "The Technology Deployment Team will operate as a self-directed work team, working for the University, responsible to the University and each other, and

> operating as a quality-centered process. The Team will manage all technology on campus; set policies, standards, and priorities; manage the total technology budget; hire technical personnel; identify and remedy any problems before they become crippling; set time-frames; and identify and recommend vendors. The President of the University will represent the University community. The three Vice Presidents (Academic, Student Services, and Finance) will serve as a Steering Committee."

There was apprehension expressed by some team members such as: "why me?" and "how am I going to get my other work done?" However, there was unanimous agreement to make it work. Without a structure or general set of expectations, and given an approved budget and a general plan, the team was sent on its way.

DESPITE OUR DIFFERENCES - WE HAD TO MAKE IT WORK!

Having never worked on a common project, the Team's first decision was to have a retreat away from campus to discuss the role of each individual and to get to know each other. Because of three factors, the Team decided to be sensitive to issues and models relating to team formation and dynamics, but to focus primarily on operating within the unique culture of Franklin University: 1) decision to move quickly on technology deployment; 2) no budget was allocated for team development; and 3) none of the team members had time to attend team-building seminars.

IDENTIFYING WHO WE ARE

The TDT decided not to engage in personality profile assessments, such as Myers-Briggs, but to focus on a more humanistic approach of sharing, valuing and respecting what is important in our lives and which personal agenda we need to spend time with and hold higher than participating on the team. The team used two questioning processes to find and structure our operations in our own manner. The first process was to identify who we are and the second was to fit these assets and liabilities into team responsibility.

The first questioning process answered the following questions: Who are you? - Personally and professionally; Why are you on the team? - Administration's perception of you; What can you do for the team? - Realistically, all things considered; Can you handle the extra work load? - Impact on your "normal" work or your private life; What do you need from the team to be your best? - Within reason; and What should be the team's rules and procedures? - We must agree on how we are to operate.

The second questioning process identified the knowledge and experience we have as individuals which would classify us to be leaders, or supporters, or non-participants in executing team responsibilities. Our backgrounds and current responsibilities established the following roles: Assistant Dean of Technology - facilitator, coordinator and project management; Instructional Designer - training, information and PR; Director of Facilities - budgets, contracts, and vendor relations; Director of Institutional Research - office requirements and training; and Director of Administrative Computing - administrative re-engineering and data conversion.

TEAM OPERATING PROCESSES

The operating process adopted by the TDT was to create a vision of the ITC Plan, break the vision into realistic phases, establish priorities, seek funding, and constantly communicate with ourselves and others. The team believed that they could not function or achieve goals without a mission, values, trust and empowerment.

The TDT mission:

> "The Technology Deployment Team will: establish short and long-term objectives, plans, and priorities of strategic technology-based applications which meet or strengthen the University's mission; promote effective technology use by faculty, staff, and students; establish policies and standards related to the acquisition and maintenance of computer hardware, software, and data; formulate policies, rules, and procedures in conjunction with faculty and staff special interest groups for the purpose of securing the most cost effective use of technology resources on campus; communicate with faculty and staff regarding anticipated hardware, software, network, and service needs; prepare and administer the annual budget for technology related to administrative and academic needs; recruit and select technical and user support positions; provide appropriate reports and summaries to the Technology Steering Committee (three Vice Presidents)."

To be efficient and achieve maximum productivity, the following Code of Conduct was agreed upon: 1) No discussion of team issues prior to complete resolution; 2) Trust each member of the team; 3) Provide information equally to all members at the same time; 4) Keep everyone abreast of each others work; 5) Respect for disagreement; 6) Keep an open mind on all issues; 7) Each has a right to respectfully decline "opportunities" for additional responsibilities; 8) Avoid interrupting others while they are talking; 9) Meetings will be held weekly and the agenda will be set prior to the meeting. The Technology Support Team secretary will take notes, prepare and distribute minutes; 10) Suspend Robert's Rules, however, majority rules; 11) Voting on issues will occur only if it is evident that there is disagreement; 12) Issues must have two-thirds of members voting; m) Commitment to making the TDT work; and 13) Do "whatever it takes" to complete our mission.

The TDT assessed the current climate for technology and recognized barriers to the efficient deployment of technology. These barriers are: conservative institutional structures; faculty, administration and staff committed to traditional unproductive work methods; lack of recognition for technology's ability to improve the teaching, learning, and administrative processes; insufficient financial resources to adequately fund the technology; the rapid pace of technological change; the complexity of electronic networked systems; disproportionate access to technology from one academic or administrative unit to another; and lack of a formal training system.

COMMUNICATIONS TO THE UNIVERSITY COMMUNITY

The expected impact of the ITC Plan to the culture of the institution was to raise a awareness and apprehension of all segments of the University community. Therefore, the TDT saw the need to establish effective communication channels to assist in the dissemination of information. The

administration was well aware of the many horror stories of schools purchasing obsolete equipment, buying technology just before prices dropped, technology not designed for the user being unused, and the need to provide expensive and expanding technical support staff. The goal was to reduce anxiety and increase positive expectations. Frequent updates appeared in the staff newsletter and student newspaper and status reports were prepared for the President, Vice Presidents and the Board of Trustees.

ESTABLISHING A PROJECT NAME

The TDT's mission and vision had to have a project name that could be used by all constituents to formalize an entity about to be developed and implemented, and which would be the target of everyone's efforts. The name "FrankliNet" was adopted for the complete campus networked environment. Following the lead of other institutions, the name was valuable for establishing the vision. In fact, a logo also was developed. The name and logo appeared on team communication documents.

SYSTEM DEVELOPMENT METHODOLOGY

The TDT followed a structured system development methodology to guide the Team's work and actions through to the implementation of FrankliNet. The life cycle of the project involved 12 phases: 1) Understand the business and academic environment through a process of questionnaires and interviews; 2) Create a complete and thorough list of functional requirements; 3) Prioritize the requirements based on University-wide demand and maximum utilization of resources; 4) Publish and share the prioritized list with the University community and hold open forums for discussion and fine-tuning; 5) Prepare a capital and operating budget plan; 6) Hire the necessary technical personnel; 7) Prepare a project implementation schedule; 8) Acquire equipment and services; 9) Conduct training; 10) Test the complete system; 11) Publicize the "roll-out" of the system; and 12) Implement the Help Desk and other support services.

A SIX PHASE PLAN

A process of converting the ITC Plan into a plan for implementation resulted in an identified set of functional requirements to be achieved by the year 2002 to coincide with the 100th anniversary of the University. Franklin is to put into action a significant portion of the technology plan in six phases: 1) Build the data communications infrastructure for FrankliNet; 2) Reach the university community at distant locations; 3) Develop and use interactive multimedia methods in the teaching and learning process; 4) Reassess the original Plan and expand the functionality of the network; 5) Integrate academic and administrative programs and services into the network; and 6) Connect to corporate networks. The term "years" was deleted because the success of completing the phase is related to tuition-based revenues and should not be linked to a specific point in time. These phases would overlap, however, the phase designation would allow the Team to identify specific units where much of the research, experimentation, and funding would be concentrated.

The vision for FrankliNet could be exhibited in a description and a set of goals. Creating a verbal image of the network was an effective tool for focusing activities toward the same objective and providing terminology that everyone in the organization could use and understand.

FrankliNet as described by the TDT:

> "FrankliNet is a complex data communication facility composed of wiring, communication links, servers, and software that actually interconnect all end-user computers designated to be on the network. The goal of the campus network is to provide a fast and reliable data infrastructure to allow computer users to address common needs and foster collaborative work and decision-making. The entire network will be managed by a team of technical professionals. Initially, software for the network will be Windows-based and include electronic mail, word processing, spreadsheet, database management, electronic calendar, and various utilities to improve work productivity. Users will also have access to Internet's world-wide communications and information resources."

SUPPORT ORGANIZATION

The TDT recognized that a wide range of talents would be needed to provide the design, development, and maintenance needed to support FrankliNet. The Technical Support Team was created to provide faculty, staff, and students with an integrated, broadly accessible information, voice, and video communications technology infrastructure. The following new positions were created as a customer centered, quality conscious Technical Support Team: Instructional Technologist, Video Technologist, Trainer, Help Desk Coordinator, Unix Administrator/Internet Consultant, Clerical support, System Programmer/Analyst, Application Programmer/Analyst, Telecommunications Specialist, Network Technician, Network Operator, and Computer Technician. Even though each member of the Technical Support Team is mentored by at least one member of the TDT, the entire Technical Support Team is responsible to and evaluated by the TDT.

BUILDING FRANKLINET

To assist in the conversion of the functional requirements into a technical design for the network, a consortium of three companies was formed to provide expertise in three areas: Infrastructure, Installation and Configuration, and Access. The three companies agreed to have their engineers work together to provide the best possible design. Upon completion and approval of the design, a cost estimate would be developed. The charge to the consortium:

> "Design a networked system that will work with us - not against us."

The TDT's role in the design and implementation of the system was to: provide Project Management resources (i.e., work tasks, time-frames, conflict resolution); coordinate the functional requirements investigation (i.e., structured interviews, documentation); define priorities and scope of the project (i.e., determine what functionality gets implemented, and in what order); provide any existing facilities documentation (i.e., mechanical rooms, current data and telephone wiring); take an active role in the RFP process (i.e., select vendor pool and write appropriate RFPs); and define quality parameters and test criteria, and oversee the testing process (i.e., Does it meet our goals?).

Criteria for a quality system was developed to recognize that the campus network must be designed for maximum value and fulfillment of FrankliNet's goals. Therefore, the following eight criteria were established: 1) Reliability - the system should be fully operational 24 hours a day, seven days

a week; 2) Ease of use - the system should be as intuitive as possible; 3) Expandability - the system should be able to expand with number of users, number of servers, bandwidth and outside access lines; 4) Compatibility - the system should be compatible with PC and Macintosh computers; 5) Accessibility - the system should be accessible from any location on or off campus. Access to different servers should be easy yet secure; 6) Responsiveness - the system should provide acceptable response time to commands even under heavy demands of user traffic, data intensive operations (i.e., screen updates), and file uploads/downloads; 7) Maintainability - the system should be designed utilizing proven state-of-the-art equipment and software, widely used topology and protocol, and simple to use network management tools; and 8) Manageability - the system should be designed to allow system and network administrators to execute their duties in a timely and efficient manner.

STICKER SHOCK

As an exercise in developing a first look at the cost for FrankliNet, the TDT used worst case assumptions, "providing all services, to all people, at all locations, at any time." The cost developed by the consortium was three times the allocated budget. Considering this, the team began to refine the scope of the first phase of FrankliNet and establish an implementation priority based on a more frugal spending plan. Even though the operating costs associated with the new Technical Support Team were high, basic services such as, state-of-the-art workstations, a campus network, networked application software, electronic mail and access to the Internet, were within range of the allocated budget. The total cost of the first year of the three-year spending budget was 75% of the total budget.

The team determined that the functionality and services introduced the first year would remain the same for at least one year. This "resting period" would allow users to become acquainted with and fully immersed in the new network functions and features and allow support services to identify problem areas and assess the next phase in building FrankliNet.

OUR FIRST SUCCESS - PROVIDE VISIBLE AND DEDICATED SUPPORT

When the ITC Plan was being developed, the most frequently expressed concern from students, faculty and staff was support such as assistance in the planning, integrating, and assessing technology in the teaching and learning process and in business operations. The first of four elements of support was to hire an Instructional Designer to work closely with faculty to introduce technology into courses.

The second element of support was the design and development of a designated training room to provide faculty with a working model of the final network. The room has a small local area network, common software, e-mail and Internet. The stated goal of the training facility is to emulate the environment in which network users would normally operate their computer systems.

The third element was to formally train users in features and functions of the network and specific software; discuss new channels of communication and methods to be productive; listen to user concerns and suggestions and gain their confidence and trust; resolve questions, procedural and security issues; and fine-tune the system's requirements.

The fourth element of support was the Help Desk. This was a critical feature of the new system and became the central source of information and problem resolution. All of the users had DOS workstations, the new environment was expected to be intimating. Therefore, having a resource ready to answer questions alleviated many fears and smoothed the way to the day the workstations were placed on the desktops. Even with the Help Desk available, the majority of assistance was between friends and colleagues and the help they provided each other.

PRIORITY OF IMPLEMENTATION

With a project of this scale, the team adopted a student centered approach. The 75 new Pentium and Macintosh workstations destined for student labs would be the first part of the network to be installed, followed by 65 Pentium and Macintosh workstations in academic offices, and then 35 new Pentium and Macintosh workstations for administrative offices. Many of the administrative staff were given the older version workstations taken from the student labs and faculty offices. The first day of class, Fall 1995 was the target date for completing the student labs. The faculty and administrative offices would be implemented as time allowed, but completed by the start of the Winter 1996 term.

WE'RE THERE - ALMOST!

On January 30, 1996, the last computer was installed in the faculty office. The V.P. of Finance has declared FrankliNet fully operational, but not finished!

HINDSIGHT - CAUSALITY OF LONG-RANGE PLANNING

In this age of rapidly changing technology, the ability to perform long-range planning has become an art rather than a science. Therefore, the ability to prepare a well developed and thorough plan can be a detriment to cost effectiveness. At the time of implementation many types of technology and services: were either non-existent at the time the plan was developed; became cheaper soon after the plan was approved; and became overused soon after implementation. However, Franklin University would not be where it is now if these concerns had held up the planning and implementation processes. Collaborative risk taking, with trust, is a necessary quality for successful team management of technology.

The following materials are available from the author:

Franklin University, July 28, 1994. Three-Year Plan for Development of Instructional Technology Resources.

Franklin University, 1995. A Strategic Plan: 2002 and Beyond.

Giuliani, Schwarzmueller, Voight, Report to the Academic Vice President on Computer Competencies, Franklin University 12-13-93.